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Procedia Social and Behavioral Sciences 18 (2011) 227–234

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**Procedia**  
Social and Behavioral Sciences

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Kongres Pengajaran dan Pembelajaran UKM, 2010

# An Effective Teaching and Learning Approach for the Architectural Program with Reference to the Framework of Educational Psychology

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## Abstract

The development of architecture in Malaysia is facing a crisis due to various problems perpetuated by individuals or groups related to the field. The individuals and groups mentioned are also categorized as human capital which not only consist of the technocratic group but also of various background disciplines such as contractors, suppliers, developers, patrons, entrepreneurs, lawyers and others. The problem is caused by the weakness of the human capital which is produced by the educational institution. Since there are opinions about a crisis which the education institution is facing in its teaching programme, it seems unsuccessful in its role in producing quality human capital. The approaches and ways of teaching and learning should be changed. It should be referred to the opinion of educational psychologists and professional academicians to upgrade the quality of teaching and learning explicitly on the architectural program.

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Selection and/or peer-review under responsibility of Kongres Pengajaran & Pembelajaran UKM, 2010

*Keywords:* architectural programme; teaching and learning; psychology aspects;

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## 1. Introduction

The main intention of this paper is to describe the problems of providing teaching instructions for the design studio subject phrased within a critical analysis of the education psychology. This paper extends the questions and issues raised by the eminent scholar, Professor Dr. Mohamad Tajuddin from Universiti Teknologi Malaysia and relies much on the framework of education of Zahari Ishak. Education is more than just passing on a set of skills or imparting experiences but more towards nurturing a more humanistic and holistic attitude and inspiring minds. This paper is important since most academics in architecture are either from the practice side of the field or simply architectural graduates with no formal training as teachers. Teaching is a profession by itself and requires a certain mind set, attitude as well as skills about the ability of imparting knowledge as well as motivating students to aspire

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beyond a specific task or function. All schools of architecture in Malaysia has evolved without any critical analysis done on the pedagogy of teaching. One of its most important subject particularly the Design Studio. It is hoped that this paper shall open a wider discourse of teaching that would place it beyond the simple act of providing robot-like workers to the building industry. Architecture is both a science and an art form phrased within the context of human rituals, beliefs and values.

The problems in architecture are caused by the weakness of individuals. The problem is assumed to be due to the education system received while in the educational institution. Because of this, the problem should be solved by correcting the foundation of the problem in order to get long term benefits. The foundation of learning is the education program given during the learning level which should be directed to the development of quality 'humans' who can think and not only skilled in doing their job but creative and honest. However, awareness program, courses to increase quality and productivity and efforts on monitoring are seen as inefficient short term efforts to address this issue. They only solve the external individual problem while the internal problem or the intra-personal ones should be solved during their education level.

This writing is prepared for the benefit of academicians and students who take architecture as their main career. It is prepared based on observation from various perspectives and roles which are the practicing architects, academicians and as a Muslim. As a practicing architect, the writer faces various crises in his career including the issue in designing buildings, architectural products, contract administration matters, city planning and others. The lists for the 'crisis' mentioned can be found in the writing of Mastor (2007). The writer felt that the city that we live in and most of the modern cities have 'failed'. The failure is not due to their poor physical planning but due to the design of cities not for people but for machines or vehicles. Man has become a 'slave' to machines and is forced to face various challenges, disasters and difficulties in the city. The city is not built to give harmony and tranquillity to people but instead it has been built due to economic factors and as gestures to glory. Traffic congestions, flash floods, road accidents, water shortages, interrupted electrical supplies, children falling from buildings, garbage disposal concerns and others are common phenomenon in the city. The result is that people themselves are being burdened with various financial issues and social problems which are difficult to bear. The problems happened due to lack of knowledge among the community on the thoughts on city planning and architecture which are supposed to solve the problem of human life. Towns and city planning have been taken over by people for profit and for the expression of glory. Knowledge on city planning and architecture has not been given to the public even though it is the third essential need for humans after food and clothing. Because of that, every academician should be perceptive to various knowledge about city planning and architecture so that it could be applied into the curriculum or co-curriculum. This is to ensure that the majority of the community know their rights as the inhabitants of the city and building.

Zahari Ishak (2006) has spoken about the need for teachers to become experts and have professional educational knowledge in order to provide an effective education. Zahari suggested that even though the experiences of teachers are important in the learning process, yet, based on the experiences this can only lead to repetition on the character and action during teaching because this action will not give a good result to the method of learning development.

The paradigm shift which leads to the cognitive revolution is considered as a huge change in education psychology during the middle of the 20<sup>th</sup> century. The change demands the increase in the knowledge and thoughts of teachers in the process of teaching and learning during teaching. However, there are several questions in education psychology which has become the main discussion agenda. These questions are related to the ability of a person to study, the development of intellectuals, the emotional and the social arrangement that happened. Furthermore, the question is what is the cause of the uniqueness in a person? Why is an individual or a group of individuals gets motivated resulting from their experiences? Why isn't there any stimulus to change? The paradigm shift will not happen if the teachers are still doing the old teaching style inherited from past practices which needs to see the changes in the student's behaviour clearly. This action will only produce a generation who is intellectual on paper but not humane enough to be the person as stipulated in the National Education Philosophy.

Zahari (2006) has also discussed on the approaches which should be taken by teachers to increase the quality of education which will bring an increase in the quality of the teaching career. Among the matters discussed are the knowledge and learning on how to teach, class control, teaching strategies, students learning knowledge and towards the need of the professional knowledge. Because of that, every academician should always study and work hard to

increase their capabilities, have good disposition, have many experiences and knowledgeable in today's matter and specialised in his own area.

## 2. The Architectural Education Crisis

The question on crisis in architectural education has been discussed by Mohamad Tajuddin Mohamad Rasdi (2003) during his Visiting Fellowship at the Institut Alam dan Tamadun Melayu (ATMA), UKM. There are two answers to the question on crisis and they are 'Yes' and 'No'. There are those who are confused and do not have any answer. The answer is 'Yes' if we feel that it has been three decades since the architectural program been taught in our country but there are only few writings, documentations and assessments on local architecture. The answer is 'No' if we do not care about the values or architectural qualities which have been developed in our country. According to Mohamad Tajuddin, he sees that the architectural education program in our country is facing a crisis if we really care about it. The most important thing that we should see is the education philosophy for every institution which is teaching architectural education. The education philosophy is important to guide the direction of education and mould the graduates who are going to do the job of developing our country. The question again is can our graduates perform their jobs in the situation where our country's development is facing a crisis? Presently, our university only produce 'skilled workers' and not 'thinkers'. Skilled workers are similar to robots which can only do work but they have no creativity to produce better work. This matter has also been discussed by Frank Lloyd Wright in criticizing universities in the United States of America as in his speech found in his book titled 'Truth against the World'. An extract of his speech is as below:

*"Now what does 'university' mean? Our state university is chiefly a trade school. You go down there for some specialized training. You are there just in line to learn to make a living. You don't go to the university to learn about the verities of nature, the truths of the 'universal' for which 'university' is the name. True education is a matter of 'seeing in', not merely 'seeing at'."*<sup>†</sup>

Wright has the opinion that most university students in the United States during that period were taught to 'see the problem' and not taught on how to 'solve the problem'. This phenomenon is also faced by programs in our universities today. It seems that our graduates have no confidence to see and solve a particular problem, explicitly on architecture based on our 'mould'.

Our education program is in a crisis state when we feel at a lost after any retired or demised academics do not leave behind their experiences and knowledge to anybody. This is because there is none or little writings partly because writings are not the main criteria for promotion of the academicians. Our education program is indeed in the crisis state when Nature and Environment Education, Architectural Anthropology, Architectural Critics and Sustainable Architecture which have been discussed for more than two decades ago and yet are not included or taught in the architectural program. In the offices where these graduates work architects do not care about this matter. Our education program is indeed in a crisis state where our students do not read much and our architecture teachers can only scribble on student's sketch book without giving any guidance in the design work. This is because these teachers also do not read much or do not do research to increase their knowledge. The most worrying part is that our students still do not read much after they graduate and also while doing research.

Most of our students have no direction during their learning process in the university (Mohammad Tajuddin, 2003). They are unsure of their main aim of studying in the university. This could happen because they do not have the chance to think about it due to the fact that they are focused on their achievement in education. The result is they will be lost in life when they graduate and have no idea on the issues concerning community development. When studying Islamic Architecture, they could only sketch the old Islamic geometries without thinking about any

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<sup>†</sup> From the Seminar paper by Mohamad Tajuddin Haji Mohamad Rasdi, Democracy and Architecture Education: The 'Wright' Perspective, Forum: Towards a Global Perspective of Architecture Education Organized by KALAM-Dept. of Architecture, UTM, Skudai, Park Royal Hotel, 23rd-24th August 2003

benefits, the Islamic values or the way of life as portrayed by the Prophet Muhammad S.A.W. After they graduate or is awarded a high post and become the director of a particular developmental project, they will portray Islamic Architecture with the dome and large gateway with referring to the historical values of a particular civilization. It is unfortunate because they could not see the interpretation on a particular type of construction which will destroy the view of the city or its environment. This is because its design is alien and has no connection with the particular environment.

### *2.1. Knowledge And Learning How To Teach*

The past researches discovered that the skill in a particular field and in-depth knowledge in the teachers individual skill is crucial in the actual teaching and learning with reference to the statement by Borks & Putnam (1996). Zahari (2006) has outlined four main core areas which should exist in all teachers and educators to ensure the effectiveness of teaching and learning. The four core areas are content knowledge, pedagogical knowledge, teaching general knowledge and student learning knowledge.

### *2.2. Content Knowledge*

Teachers in architecture could not teach on how to design and build a perfect building if they themselves do not design and build an actual building. This is related to confidence, experiences and knowledge on the procedure needed to design and build a building. Many researches were done on the connection of what teachers knew and how they taught. (Shulman, 1986; Wilson, Shulman & Richert, (1987). The exposure on the contents that will be taught and observation and evaluation on the finished building should be the core elements in teaching and learning to the teachers who are teaching architecture. This should not be delivered as illusion in the effort to give the skill towards the knowledge on content. Thus it is crucial that teachers in architecture should get a direct experience in the architectural industry. This is to increase their confidence, experiences and knowledge in the content section.

#### *2.2.1. Teaching Knowledge Content*

Shulman (1986) has defined that teaching knowledge content is an understanding on how to make specialized subject understandable to students. Architecture is a specialized subject and its knowledge has never been taught in schools and matriculation colleges in Malaysia. Thus, if teachers fail to impart a deep knowledge on architecture, their teaching will not be meaningful if they fail to make the teaching content as a new knowledge to the students in line with the practiced culture and environment.

From past researches, it is found that teachers who have a vast content knowledge, have difficulties in presenting their knowledge to a new batch of students (Nathan, Koedinger & Alibali, 2001). This is because teachers who have vast knowledge, experiences and expertise could not bring themselves down to the thinking level of their students. Because of that, the basic element in the procedure of an effective teaching and learning is to have a balance between educators and students. The knowledge in the teaching content is the ability to present a particular topic or knowledge by the teachers through an effective form of presentation to the students which will be meaningful to their life. Among the approach that could be used to complete the work are through the understanding of the environment, metaphor, demonstration, case studies, the use of model and simulation.

The method of teaching architectural design should be arranged in such a way that exercises upon the level of difficulties and design project are arranged; from simple to complex ones appropriate to a student's level of thinking and to their year of studies. Every subject whether related to history and basic theory in architecture, construction technology, environmental science, building services and other facilities and architectural administration should also be arranged to support the student's thinking development suitable with the level of difficulties and special qualities of the project given. Besides that, the workload of every teacher in architecture should also be arranged according to their skilled area and knowledge level so that it is appropriate to the level of the student's acceptance.

Zahari (2006) stressed the importance of established presentation to make sure that students can acquire a meaningful abstract thinking and practise it in their everyday activities. So, the approach on understanding the environment is suitable to be practised on education at the fundamental architectural level specifically to First Year students. The architectural design exercises should begin with the observation on students themselves to represent

humans as the nature's occupants with the understanding on the measurement and everyday habitual activities. Then, all the information should be transformed into abstract thinking which are put into drawings, models or others. Students should understand nature and other living things in their environment and then repeat the exercises by transforming them into abstract thinking and put into drawing and other mediums. Drawings and similar visual mediums are like metaphors to themselves and the environment they occupy. The exercises will make them know more about themselves and the environment. They are able to tell a story through drawings and appropriate mediums to represent themselves and the environment. After that, they are able to understand the procedure and the basic thinking of the architectural design which always refer to people as the user of nature and the environment. Bransford, Brown & Cocking (2006) stressed that it is very crucial for teachers to have vast teaching knowledge because many students are comfortable with the approach that is related to a 'mechanical' approach but do not like or find difficulty to understand problems as defined by words. Hence, the use of examples based on the environment is important in delivering the fact in abstract. The metaphor approach can be used in the architectural design by asking students to design buildings based on the medium which are designed to portray objects or original life chosen.

According to Zahari (2006), the demonstration approach could bring joy to students. In the architectural design teaching, demonstrations can give direct understanding to students on the knowledge taught. However, this approach might be suitable for a group of students who has little knowledge in design method but still lacking in the understanding and thinking development. Second Year students might benefit from the use of this approach. They are beginning to design spaces or buildings in the form of one space for many uses. For example, students are asked to design a stall to promote craftwork or heritage food. Before that they are asked to design boxes or covers for the craftwork or the heritage food. They have to take into account the values in arts, beauty and storage. The production of the box or cover design has made them involved directly with the heritage industry. They will then understand the need of the spaces related to the industry which becomes the title to these exercise project.

The research approach also helps and plays a big role in the architectural teaching and learning. Siegel (2002) outlined the importance on how the teachers think about it and its connection on teaching and how student study. Teachers could not present detailed information on a particular building as an illusion of 'perfection' unless students see for themselves the construction of the building and make an analysis. Through the exercises, students receive a direct exposure and manage to design building with the same uses.

Model building and the use of models during teaching is a common approach to teach architecture students. Through model making, students can understand more the function and connection between spaces, space measurement, buildable, connection with the environment and others. Fujimora (2001) said that model-based learning can create a social knowledge values which can help students in the formation of thinking style or mental image on the abstract thinking which will be directed to the future thinking development.

Zahari (2006) suggested that teaching and learning using a simulation approach can also be used to capture student's interest and it will leave a deep impact on a particular basic thinking. In the architectural design teaching, students are frequently asked to imagine a basic architectural thinking to their liking where they can choose their favourite style and architectural characteristic. For example, if they like the style and character of the architecture of the heritage Malay house, they can use the basic thinking of the construction of the Malay house but not the shape, style or its character. They can use the basic construction of the house such as the floor on posts, prefabrication units, the *tanggam* or joinery method, walls that can breathe, different levels of floors, pitch roof, long roof, module and others. From this, students manage to produce the latest architectural style which has the spirit of the place and the spirit of the time. A particular architecture is said to have the spirit of the place when it takes into account all the elements present at the site and its surrounding such as the climate, temperature, humidity, mountains, plants, rivers and others. An architecture is said to have the spirit of the time after it has taken into account all the elements connected to the development of time such as technology, building materials, basic thinking, politics, economy, culture and others. The architectural design like this usually has high values because it is produced with the use of the true architectural knowledge.

### 2.2.2. *General Teaching Knowledge*

Knowledge content and teaching knowledge content are specific elements of a particular subject related to the ability of the teacher to connect them with theories and concepts during teaching and learning activities. The

General Teaching Knowledge is related to the understanding of thoughts related general principles, class control, topic contents of a subject and the expertise or ability of the teacher with respect to a particular subject taught (Borko & Putnam, 1996). Therefore, the teachers of architecture must keep themselves abreast with the contemporary knowledge through reading books, journals and other literature, be involved occasionally in practice to hone in their design and management skills and perform researches that would widen their fields of expertise further in order to develop a higher confidence of teaching.

### *2.2.3. Student Knowledge and Learning*

Student knowledge and learning are the basic information that must be possessed by the teacher (Borko & Pyutnam, 1996) in which their thoughts will form the core understanding for the teacher in the teaching and learning experience. As the thinking ability between students are different, the teacher must assess these differences and focus a bit more on those considered as ‘slow students’ whilst giving inspiring stimulus to the faster thinking ones. Usually the ‘faster student’ is able to respond more quickly and work independently whilst becoming a base line for the other students to emulate.

### *2.3. Class Control*

One-way-teaching usually produces undesirable results to an effective teaching and learning experience (Zahari, 2006). The teacher should know how to make the learning environment more conducive for the activities meant in the classroom (Emmer & Evertson, 2003). Thus, teachers of architecture must be able to formulate interesting activities for learning to take place within the stipulated rules and regulations allowed and the dictates of good values. If students get bored with a stale environment of learning, the experience of teaching can be moved to the outside for instance under a tree while teaching landscape, at a traditional wakaf while teaching timber construction or teaching management in a meeting room at a real office environment. The varieties of teaching environments can enhance the learning experience by creating interest and different experiences.

### *2.4. Teaching Plan*

The teacher’s knowledge about a particular subject to be taught forms the most important basis for teaching and learning (Zahari, 2006). Therefore, each teacher should plan the lesson so that the content of that learning falls within the prescribed parameters set by an accredited body as the MAPSM or Board of Accreditation for Architectural Education in Malaysia.

Because the Design subject is a core item in architecture education, all other related subjects must be arranged such that they will create a support base for the central one. The teaching method in the design subject is in the form of studio method, the teachers will have to face the student on a one-to-one basis in order to provide important criticism and feedbacks to the design exercises. The time allocated for each student critic must be planned in a manner that all the students will be seen to and given enough feedback for them to proceed to the next step. In order to avoid the lapses in curriculum content and method of criticism on the part of the teachers or studio masters, a workshop on improvement should be held from time to time so that the teaching and studio experience can be shared. Colloquiums on these experiences should also be organised as they can form an excellent platform of interchange of ideas between teachers and studio masters from other institutions as well as allow comments of senior educators.

### *2.5. Student Learning Knowledge*

Usually, students do not react like a tape recorder when they are presented with a set of knowledge or skill by memorizing all that was imparted but their reaction is by making assumptions on that presented knowledge in an effort to create meaning. In this effort of establishing meaning, information can have a superficial meaning or a deeper one. Thus, the expertise of the teacher in the impartation of knowledge and the aid towards formulating meaningful information is something that should not be debatable any more. Because architecture has so many facets of knowledge to be considered, there will be a group of students that will be at a loss in interpreting the

correct meaning from the myriads of information provided. The studio master and teacher must be prepared to spend a little extra time and to be extremely patient to guide the students to the intended meanings of the exercises, information and directions.

Towards that end, Zahari (2006) proposes that the Psychology of Education be used in combination with the experience of the architecture teachers in creating a more effective teacher of architectural knowledge.

### *2.6. Towards The Need Of Practical Knowledge*

In the United States of America, there is a body called INTACS or Interstate Teacher Assessment and Support Consortium that acknowledges the professionalism of the teaching profession. Its main objective is to elevate the level of professionalism on the part of the new teachers in the world of education. INTACS puts across 10 principles to be obeyed by its members which are, knowledge about the subject, learning and human development, adaptability of teaching, strategy, management and motivation, communication skills, planning, assessment, commitment and sharing (Zahari, 2006).

The teachers and educators of architecture should view the stated principles as a milestone to assess their teaching ability. Each weakness must be dealt with so as the teaching profession is more meaningful and provide much benefits towards the growth of a society and civilization in a country.

## **3. Conclusion**

A Teaching Expert is a valuable asset to any educational institution. He or she is not only a person who can benefit the students in their learning capacity but also instrumental as a guide to the new teaching staff that is striving to learn the best way to impart their knowledge. These experts are invaluable not only in developing the specific fields of knowledge but also invaluable to other institutions that require their services.

Thus, each educator and teacher must strive their utmost to better themselves in their specific field of expertise as well as in other knowledge to reinvent themselves and be able to look at their knowledge in a more meaningful and dynamic fashion and not stick to the same views all the time. They should always try to equip themselves with the latest methods and findings about teaching as well as correct themselves as to the weaknesses inherent in their methods by attending courses organised by the Ministry of Higher Learning, universities and others.

All of us must be made aware of the fact that the sum of all our knowledge is miniscule in comparison to the vast knowledge of Allah The Most High. Allah has the sole power to increase or retract our possessed knowledge that will be imparted to others. Our inability to stay true to our honest values and integrity may cause the repossession of that knowledge by Allah. Such a situation will never fall upon the honest teachers and educators that strive hard towards delivering knowledge with a true sense of purpose and integrity.

The development of architecture in this country will never change if academics and educators refuse to change towards an atmosphere of education that would provide the student to be a visionary or a thinker. The student should be taught that human development is tied in directly with architectural development and vice-versa. The architectural education program should be accessible to all and sundry so as to create the notion about the importance of having a good built environment. The general student population in whatever field should also be taught to appreciate good architecture so that they can voice out their concerns on the buildings that have been dished out to them to use, live in or work at. Academics and all professionals like engineers, architects, thinkers and others involved in the building industry must learn the importance of architecture that reflects the true spirit of the times. Such important thought is crucial in order that we should not order or accept development that seek to imitate past glories of architecture through mere sentiment of simplistic symbolic purposes. All of us must support an architecture product that is wholly represented of our true selves, 'warts' and all.

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